

## AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

1-26. (canceled)

27. (currently amended) A tag comprising ~~an~~a single integrated circuit chip that includes:  
a first receiving antenna that receives an electromagnetic wave;  
a signal receiving system that receives and stores input data derived from the wave;  
a converter system that receives the wave and converts the wave to an electric charge;  
a separate power storage component that receives and stores the electric charge to use the  
charge sufficient energy to power the integrated circuit; and  
a data processing system that produces output data from the input data; and  
a circuit that sends at least a portion of the output data to a second transmission antenna;  
~~a wherein the second transmission antenna that~~ transmits at least a portion of the output  
data externally to the tag.

28. (currently amended) A tag comprising ~~an~~a single integrated circuit chip that includes:  
~~a receiving~~ antenna that receives an electromagnetic wave;  
a converter system that receives the wave and converts the wave to an electric charge;  
a separate power storage component that receives and stores the electric charge to use the  
charge sufficient energy to power the integrated circuit;  
a data processing system that produces output data; and  
transmission electronics that transmits at least a portion of the output data externally to  
the tag using the antenna.

29 - 32. (Canceled)

33. (previously presented) The tag of claim 27, wherein the wave has a wavelength within a spectrum of the wavelengths from radio waves to ultraviolet light, inclusive.

34. (previously presented) The tag of claim 27, further comprising a memory section that stores at least a portion of the input data and at least a portion of the output data.

35. (previously presented) The tag of claim 34, wherein the memory section is nonvolatile.

36. (previously presented) The tag of claim 27, further comprising a multiplexer that controls flow of the input data.
37. (previously presented) The tag of claim 27, further comprising a pulse generating circuit.
38. (previously presented) The tag of claim 27, wherein the input data is in analog form.
39. (previously presented) The tag of claim 27, wherein the input data is in digital form.
40. (previously presented) The tag of claim 27, wherein the output data is in analog form.
41. (previously presented) The tag of claim 27, wherein the output data is in digital form.
42. (previously presented) The tag of claim 27, further comprising a clock generator circuit.
43. (previously presented) The tag of claim 27, further comprising a shift register circuit.
44. (previously presented) The tag of claim 27, wherein the transmission antenna is selected from the group consisting of a backscatter, a dipole, half wave, a quarter wave, and a closed loop type antenna.
45. (previously presented) The tag of claim 27, wherein the integrated circuit is built onto material that includes a composition selected from the group consisting of silicone, germanium, GaAs, sapphire, and diamond.
46. (previously presented) The tag of claim 27, further comprising test and monitoring points and pads.
47. (previously presented) The tag of claim 27, further comprising a test and monitoring control circuitry.
48. (previously presented) The tag of claim 27, further comprising circuits selected from a group of circuits including logic, sequencing and switching.
49. (previously presented) The tag of claim 28, wherein the wave has a wavelength within a spectrum of the wavelengths from radio waves to ultraviolet light.

50. (previously presented) The tag of claim 27, wherein the receiving antenna comprises an antenna selected from the group consisting of a dipole, a half wave, a quarter wave, and a closed loop antenna.
51. (previously presented) The tag of claim 27, wherein the transmission antenna comprises a dipole antenna.
52. (previously presented) The tag of claim 51, wherein the transmission antenna is powered entirely by the energy stored by the power storage component.
53. (Canceled)
54. (previously presented) The tag of claim 28, further comprising a memory section that stores at least a portion of the output data.
55. (previously presented) The tag of claim 54, wherein the memory section is a nonvolatile memory.
56. (previously presented) The tag of claim 28, further comprising a multiplexer that controls flow of the output data
57. (previously presented) The tag of claim 28, further comprising a pulse generating circuit.
58. (previously presented) The tag of claim 28, further comprising a circuit circuitry that receives input data in analog form.
59. (previously presented) The tag of claim 58, wherein the input data is in digital form.
60. (previously presented) The tag of claim 28, wherein the output data is in analog form.
61. (previously presented) The tag of claim 28, wherein the output data is in digital form.
62. (previously presented) The tag of claim 28, further comprising a clock generator circuit.
63. (previously presented) The tag of claim 28, further comprising a shift register circuit.

64. (previously presented) The tag of claim 51, wherein the transmission antenna is a backscatter type antenna.
65. (previously presented) The tag of claim 28, wherein the integrated circuit is built onto a substrate that includes a material selected from the group consisting of silicone, germanium, GaAs, sapphire, and or diamond.
66. (previously presented) The tag of claim 28, further comprising test and monitoring points and pads.
67. (previously presented) The tag of claim 28, further comprising test and monitoring control circuitry.
68. (previously presented) The tag of claim 28, further comprising circuits selected from a group of circuits including logic, sequencing and switching.
69. (previously presented) The tag according to claim 27, wherein the receiving antenna is tuned to a frequency from radio waves to ultra violet, inclusive.
70. (previously presented) The tag according to claim 28, wherein the transmission antenna is tuned to a frequency from radio waves to ultra violet, inclusive.
71. (previously presented) The tag of claim 27 wherein the integrated circuit is monolithic, the receiving antenna supplies power to both the integrated circuit and the transmission antenna, and further comprising a memory that stores at least a portion of the input data and at least a portion of the output data.
72. (previously presented) The tag of claim 28 wherein the integrated circuit is monolithic, the receiving antenna supplies power to the integrated circuit, and further comprising a memory that stores at least a portion of the input data and at least a portion of the output data.
73. (previously presented) The tag of claim 27, further comprising a data processing system that processes the input data and produces at least one decision and takes at least one action.

74. (previously presented) The tag of claim 28, further comprising a data processing system that processes the input data and produces at least one decision and takes at least one action.
75. (currently amended) A method of making a tag comprising an a single integrated circuit chip that includes:  
a-receiving an electromagnetic wave using a receiving antenna that receives an  
electromagnetic wave;  
a-storing an signal-receiving system that receives and stores input data that is derived  
from the wave;  
converting the wave received to charge;  
a-separate power storage-storing component that receives and stores the charge to use the  
chargesufficient energy to power the integrated circuit ;  
producing an output data from at least a portion of the input data;  
sending at least a portion of the output data to a second transmission antenna; andand  
transmission-transmitting electronics that transmits at least a portion of the input-output  
data externally to the tag.
76. (previously presented) The tag of claim 75, wherein the wave has a wavelength within a spectrum of the wavelengths from radio waves to ultraviolet light.
77. (previously presented) The tag of claim 75, wherein the receiving antenna is selected from the group consisting of a dipole, a backscatter, a half wave, and a quarter wave antenna.
78. (previously presented) The tag of claim 75, wherein the receiving antenna comprises a loop antenna.
79. (previously presented) The tag of claim 75, further comprising a memory section that stores at least a portion of the input data.
80. (previously presented) The tag of claim 75, further comprising a tuning circuit that tunes the receiving antenna to receive the wave at a frequency selected from a range from waves to ultraviolet.

- 81. (previously presented) The tag of claim 79, wherein the memory section is nonvolatile.
- 82. (previously presented) The tag of claim 27, wherein the driver circuit drives the transmission antenna selected from a group including full wave, half-wave and quarter-wave reflectors.
- 83. (previously presented) The tag of claim 75, further comprising a multiplexer that controls flow of the input data.
- 84. (previously presented) The tag of claim 75, further comprising a pulse generating circuit.
- 85-89. (Canceled)
- 90. (previously presented) The tag of claim 75, further comprising a circuit that receives input data in analog form.
- 91. (previously presented) The tag of claim 75, wherein the input data is in digital form.
- 92. (previously presented) The tag of claim 75, wherein the output data is in analog form.
- 93. (previously presented) The tag of claim 75, wherein the output data is in digital form.
- 94. (previously presented) The tag of claim 75, further comprising a clock generator circuit.
- 95. (previously presented) The tag of claim 75, further comprising a shift register circuit.
- 96. (previously presented) The tag of claim 75, further comprising a data processing system that processes the input data and produces at least one decision and takes at least one action.
- 97. (previously presented) The tag of claim 75, wherein the integrated circuit utilizes a substrate that includes a material selected from the group consisting of silicone, germanium, GaAs, sapphire and diamond.
- 98. (previously presented) The tag of claim 75, further comprising test and monitoring points and pads.

99. (previously presented) The tag of claim 75, further comprising test and monitoring control circuitry.
100. (previously presented) The tag of claim 75, further comprising circuits selected from the group of circuits consisting of logic, sequencing, and switching circuits.
101. (previously presented) The tag of claim 75, wherein the receiving antenna comprises a single pole antenna.
102. (previously presented) The tag of claim 27, wherein the receiving antenna comprises a loop antenna.
103. (previously presented) The tag of claim 27, wherein the transmission antenna comprises a loop antenna.
104. (previously presented) The tag of claim 27, wherein the receiving antenna comprises a single pole antenna.
105. (previously presented) The tag of claim 27, wherein the transmission antenna comprises a single pole antenna.
106. (previously presented) The tag of claim 28, wherein the receiving antenna comprises a single pole antenna.
107. (previously presented) The tag of claim 28, wherein the receiving antenna comprises a loop antenna.
108. (previously presented) The tag of claim 28, wherein the receiving antenna is a dipole type antenna.
109. (previously presented) The tag of claim 108, wherein the receiving antenna is a backscatter type antenna.